

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

45. (New) An IC card comprising:

electronic wallet unit for management of electronic value information,

electronic wallet storage unit that is the intrinsic storage area of the electronic wallet unit.

electronic information registration unit registering said electronic value information to an electronic safe unit connected through a network and acquiring a registration certificate from the electronic safe unit;

electronic information recovery unit for acquiring said electronic value information by presenting said registration certificate to said electronic safe unit,

electronic information dividing unit for dividing said electronic value information to the desired number of partial electronic information pieces to which an identifier for recovering said electronic value information to the original electronic value information is respectively added; and

an electronic information combining unit for recovering said electronic value information from said divided electronic information pieces,

wherein said electronic registration unit acquires a plurality of partial electronic information pieces by requesting division of said electronic value information to said electronic information dividing unit and also acquires respective partial information registration certificates by registering the entire part or a part of said partial electronic information to the electronic safe unit,

said electronic information recovery unit acquires respective corresponding partial electronic information pieces by presenting the entire part or a part of said partial information registration certificates to the electronic safe unit that has issued the respective partial information registration certificates, and

said electronic information combining unit recovers said electronic value information from said obtained partial electronic information pieces.

46. (New) The IC card according to claim 45 comprising:

a key storage unit for storing a set of an encryption key and a decoding key; and

an encrypting/decoding unit for executing the encryption of said electronic value information using the encryption key and also executing the decoding using said decoding key,

wherein said electronic information registration unit registers the encryption electronic value information obtaining by encrypting the electronic value information obtained from said electronic walled unit with said encrypting/decoding unit to said electronic safe unit in

order to obtain the encryption electronic value information registration certificate, and

said electronic information recovery unit obtains the corresponding encryption electronic value information by presenting said encryption electronic value information registration certificate to said electronic safe unit and also obtains said electronic value information decoded with said encrypting/decoding unit and then recovers such information on said electronic safe unit.

47. (New) The IC card according to claim 46, wherein said electronic information registration unit acquires a key registration certificate by obtaining a key information from said key storage unit and registering this information to said electronic safe unit, and

said electronic information recovery unit acquires the corresponding key information by presenting said key registration certificate to said electronic safe unit and then recovering said obtained key information on said key storage unit.

48. (New) The IC card according to claim 46, wherein a decoding key for decoding said encrypted electronic value information is registered to another electronic safe unit different from said electronic safe unit to acquire the key registration certificate and said electronic information recovery unit acquires the corresponding key information by presenting said key registration certificate to said another electronic safe unit and then recovering said obtained key information to said key storage unit.

49. (New) The IC card according to claim 46, wherein said electronic information registration unit acquires a plurality of encryption-divided electronic information by respectively encrypting, with the encrypting/decoding unit a plurality of divided electronic information pieces divided with the electronic information dividing unit and also acquires the corresponding registration certificates by registering, to the electronic safe unit, the entire part or a part of a plurality of obtained encryption-divided electronic information pieces.

50. (New) The IC card according to claim 46, wherein said electronic information registration unit acquires an encryption electronic information by encrypting the electronic value information with said encrypting/decoding unit, also acquires a plurality of division-encrypted electronic information using said electronic information dividing unit from said acquired encryption electronic information and also acquires the corresponding registration certificate by registering the entire part or a part of a plurality of said division-encrypted electronic information pieces to the electronic safe unit.

51. (New) The IC card according to claim 45, comprising:

an electronic information coupling unit for coupling a plurality of electronic value information pieces to output one coupled electronic information; and

an electronic decoupling unit for dividing said coupled electronic information to a plurality of original electronic information pieces,

wherein said electronic information coupling unit generates the coupled electronic information from a set of a plurality of electronic value information pieces,

said electronic information registration unit acquires the corresponding coupled electronic information registration certificate by registering said coupled electronic information to said electronic safe unit,

said electronic information recovery unit acquires the corresponding coupled electronic information from the electronic safe unit by presenting said coupled electronic information registration certificate, and

said electronic information de-coupling unit acquires a set of a plurality of said electronic value information pieces from said coupled electronic information.

52. (New) The IC card according to claim 51, wherein said electronic information dividing unit divides the key information obtained by said electronic information registration unit from said key storage unit into a plurality of partial keys,

said encrypting/decoding unit acquires the encryption of electronic information by encrypting the electronic value information obtained by said electronic information registration unit from said electronic wallet unit,

said electronic information coupling unit acquires the coupled electronic information from said encryption electronic information and the partial key group A as part of said partial key,

said electronic information registration unit acquires the corresponding registration certificate by registering said coupled electronic information and the partial key group B as the remaining partial key to different electronic safe unit respectively,

said electronic information recovery unit acquires said coupled electronic information from said partial key group B by presenting said registration certificate to the corresponding electronic safe unit, said electronic information de-coupling unit isolates said coupled electronic information to said encryption electronic information and said partial group A,

said electronic information combining unit combines said partial key group A and said partial key group A to generate a key information,

said encryption/decoding unit decodes said encryption electronic information and acquires said electronic value information, and

said electronic information recovery unit acquires said key information to recover this information on said key storage unit and also recovers said electronic value information on the electronic wallet unit.

53. (New) The IC card according to claim 52, wherein said electronic information dividing unit sets the partial key obtained by dividing the key information as an original information to generate a pair of keys of the encryption key and the decoding key.

54. (New) The IC card according to claim 46, comprising an original encryption seed information used to

generate the decoding key and a decoding key generation algorithm to generate the decoding key from said encryption seed information,

wherein said electronic information registering unit acquires the corresponding encryption seed information registration certificate by registering said encryption seed information to said electronic safe unit,

said electronic information recovery unit acquires the corresponding encryption seed information from said electronic safe unit by presenting said encryption seed information registration certificate,

said encrypting/decoding unit generates the decoding key by multiplying said encryption seed information with said decoding key generation algorithm and said electronic information recovery unit decodes said electronic value information obtained by said electronic information recovery unit using said decoding key.

55. (New) A terminal device connectable with the IC card specified in claim 45, wherein the terminal device receives an intrinsic owner information from an owner information input unit connected with the terminal device,

the terminal device receives an owner authentication information corresponding to the owner from an owner authentication information input unit connected with the terminal device,

the terminal device sends an owner authentication information to an electronic information registration unit being an element of the IC card, and then the electronic information registration unit can register a set of electronic

value information and the owner authentication information to an electronic safe unit connected with a network,

the terminal device sends the owner information to an electronic information recovery unit being an element of the IC card, and then the electronic information recovery unit can acquire said electronic value information when collation with said owner authentication information is completed successfully by presenting the owner information obtained from said owner information input unit to said electronic safe unit.

56. (New) The terminal device according to claim 55, wherein the terminal device is connected with an owner authentication information storage unit for holding the owner authentication information corresponding to said owner information and an owner authentication unit for inspecting legitimacy by comparing said owner information with said owner authentication information and,

when the terminal device notifies an authentication result obtained by the owner authentication unit to the electronic safe unit, the electronic safe unit forms an encryption communication path between said electronic information registration unit and the electronic safe unit.

57. (New) The terminal device according to claim 56, wherein said owner information input unit and owner authentication unit generate a common key to use temporarily and hold in common, and

said owner information input unit encrypts the owner information with said common key to send the encrypted owner information to the owner authentication unit.

58. (New) The terminal device according to claim 56, wherein said owner information input unit encrypts the owner information with the public key corresponding to an intrinsic secret key of the owner authentication unit and said owner information input unit sends the encrypted owner information to the owner authentication unit.

59. (New) The IC card according to claim 45, comprising a backup condition storage unit for storing the condition information for backup of the electronic value information and

a backup object extraction unit for selecting the backup object from said electronic wallet unit by interpreting the backup condition obtained from said backup condition storage unit,

wherein said electronic information registration unit acquires the corresponding registration certificate by automatically registering said electronic value information of backup object to said electronic safe unit.

60. (New) The IC card according to claim 59, wherein if sufficient capacity is not left on the electronic wallet storage unit when the electronic information recovery unit presents the registration certificate to recover the corresponding electronic value information on the electronic wallet unit or to register a new electronic value information on the electronic wallet unit, the electronic information registration unit acquires the corresponding registration certificate by selecting the electronic value information of the backup object from said electronic wallet unit using said backup object extraction unit and then registering such information to said electronic wallet safe unit,

a vacant capacity is expanded by deleting said electronic value information as the backup object from electronic wallet storage unit, and

when the sufficient vacant capacity is reserved, the electronic information is recovered on said electronic wallet unit or a new electronic value information is registered.

61. (New) The IC card according to claim 48, wherein when the owner authentication to the another electronic safe unit registering said decoding key is completed successfully, said another electronic safe unit acquires the encryption electronic information through the communication with the electronic safe unit having registered the electronic value information other than said decoding key, and

said electronic information recovery unit acquires said encrypted electronic value information from the another electronic safe unit and then recovers such electronic value information on said electronic wallet unit.

62. (New) The IC card according to claim 48, wherein when owner authentication to the another electronic safe unit registering said decoding key is completed successfully, said another electronic safe unit acquires the encryption electronic information by making communication with the electronic safe unit registering the electronic value information other than said decoding key,

said electronic information recovery unit acquires said encrypted electronic value information from said another electronic safe unit to recover such information on said electronic wallet unit,

said encrypting/decoding unit generates a pair of new encryption key and decoding key, and said electronic value information is encrypted using said new encryption key and said new encryption key is sent to said another electronic safe unit.

63. (New) The IC card according to claim 45, wherein if sufficient capacity for information recovery is not remained on the electronic wallet unit when said electronic information recovery unit presents the registration certificate to recover the corresponding electronic value information on the electronic wallet unit or registers a new electronic value information on the electronic wallet unit, the recovery job is suspended.

64. (New) The IC card according to claim 45, wherein when said electronic information unit acquires the corresponding registration certificate by registering the electronic value information obtained from said electronic wallet unit to said electronic safe unit and said registration certificate is normally registered to said electronic wallet unit, said electronic information registration unit deletes said electronic value information from said electronic wallet unit.

65. (New) The IC card according to claim 45, wherein when said electronic information recovery unit acquires the corresponding electronic value information from said electronic safe unit by presenting the registration certificate obtained from said electronic wallet unit and said electronic value information is normally recovered on the electronic wallet unit, said electronic information recovery unit deletes said registration certificate from said

Appln. No. 09/807,295
Amd. dated December 21, 2004
Reply to Office Action of September 22, 2004

electronic wallet unit and also deletes said electronic value information from said electronic safe unit.